



WILLS EYE HOSPITAL 1986 ANNUAL REPORT

Wills Eye Hospital salutes the National Institutes of Health on its centennial celebration.

The roots of the NIH go back to a small bacteriological laboratory established in 1887 on Staten Island. From that one-room laboratory with a lone researcher, the NIH has grown into the world's largest and foremost health research center. Today, the NIH is an aggregation of 12 major research institutes, with more than 14,000 staffers at work on its 306-acre campus in Bethesda, Maryland.

In the labs of the NIH institutes, such as the National Eye Institute, investigators are working at the forefront of research into conquering diseases and creating a better health environment for the entire world.

In addition to conducting its own research projects, the NIH funds projects at hospitals, medical schools, universities and other research facilities throughout the United States; provides training in biomed-

ical research; and encourages the exchange of scientists and scientific information between the United States and other nations of the world. The largest collection of medical literature is housed in the National Library of Medicine, a part of the NIH.

During the past 100 years, the NIH has been instrumental in achieving important breakthroughs in numerous areas, including cancer, blindness, stroke, cardiovascular diseases and genetic disorders. The value of these accomplishments has been recognized through the awarding of 85 Nobel Prizes to NIH researchers or to researchers working under NIH grants.

The NIH now stands at the threshold of a second century devoted to the promotion and preservation of health.



A PARTNERSHIP WITH VISION



In 1987, the National Institutes of Health celebrates its 100th anniversary—a century of service in the promotion and preservation of human health. The NIH was founded to serve the needs of a burgeoning nation; it has grown into a vital human resource for an entire planet, for the ravages of disease recognize no national boundaries.

The National Eye Institute is the NIH focus for the eye. It serves as both laboratory and library—the primary source of research initiatives on vision disorders and the central clearinghouse for information on sight.

The NEI provides Wills, and indeed every other ophthalmology center, with a unique perspective. Through its “eyes” we see eye disorders on a national—even global—scale. We can participate in basic and applied research programs which touch upon lives just around the corner from Ninth and Walnut Streets in Philadelphia, and in neighborhoods thousands of miles from the Delaware Valley.

The NEI, working in close cooperation with the National Advisory Eye Council, developed a comprehensive and detailed national plan for vision research. This program, which identified and targeted the most serious eye disorders, is part and parcel of the NIH’s agenda to promote the health and well-being of all Americans. As an active partner in the development and implementation of this national plan, Wills Eye Hospital has chosen to focus on some of its key elements to show what is being done at Wills to meet these important needs. It is our way of paying tribute to the NIH on its 100th anniversary.

A PARTNERSHIP WITH VISION

William Tasman, M.D., (center) confers with Raymond E. Adams, M.D., Vice Ophthalmologist-in-Chief (left), and Lov K. Sarin, M.D., Medical Staff President.



The theme of this year's report is the 100th anniversary of the National Institutes of Health (NIH) which had its beginnings in 1887. By that time, Wills was already 55 years old and in the forefront of ophthalmology in this country. Both institutions have undergone remarkably parallel growth over the last 100 years. The NIH, for example, now has the National Eye Institute (NEI) and many other labs and institutes, and Wills has developed in-depth subspecialization. The NIH, which started as a one-room "Hygienic Laboratory" on Staten Island, currently occupies a major complex of buildings in Bethesda, Maryland. And Wills, which began as a small, one-story hospital at Logan Square on the Benjamin Franklin Parkway in Philadelphia, moved first to 16th and Spring Garden Streets in 1932, and then in 1980 to its present location on the Jefferson campus at Ninth and Walnut Streets.

Over the last 100 years, research and medical science have elevated eye care to a state of the art not envisioned even 20 years ago. Accompanying these advances, however, have been revolutionary changes in health care delivery, which have especially impacted on ophthalmology particularly with regard to outpatient surgery. Despite this, Wills has continued to progress and continues as a leader and pioneer in eye care.

In addition, Wills provides an unequalled training ground for a very talented group of young men and women who have chosen ophthalmology as their career. This applies not only to our residency, but to the numerous fellowships offered in the various subspecialties. Wills is fertile ground as well for the education of medical students from Jefferson and other medical schools around the country.

The past year was noteworthy in many ways. Ralph C. Eagle, Jr., M.D., a consummate ocular pathologist, accepted the role of Director of Pathology at Wills. He comes to us with outstanding credentials including membership in the select Verhoeff Society. His addition has been significant and welcome.

This past year was unique in still another very exciting way. For the first time Wills Eye Hospital will have an endowed chair. The endowment for the chair has been realized through a combined fund-raising effort by Wills and Thomas Jefferson University in honor of Thomas D. Duane, M.D., Ph.D., former Ophthalmologist-in-Chief at Wills and Chairman of the Department of Ophthalmology at Jefferson. We expect the Chair to be activated in 1987, most likely in research.

Our research continues to be supported by Research to Prevent Blindness (RPB) which this past year increased their annual unrestricted grant from \$25,000 to \$30,000. This and other grants have permitted Wills staff, residents, fellows and ex-residents to complete several significant clinical research projects. In the field of basic research, notable is the pioneering work of Larry Donoso, M.D., Ph.D., Co-Director of Research, who has documented significant findings related to inflammatory ocular disease with his work on S-antigen.

Looking ahead, 1987 is a year that will see a new annual name lectureship inaugurated at the Wills Annual Clinical Conference this April. Endowed by Allergan, the lectureship will honor Irving H. Leopold, M.D., D.Sc., our first Ophthalmologist-in-Chief, and will focus on ocular therapeutics. The first lecture will be given by Dr. Leopold which makes this year's Wills Conference a definite landmark event.

William Tasman, M.D.
Ophthalmologist-in-Chief

A PARTNERSHIP WITH VISION

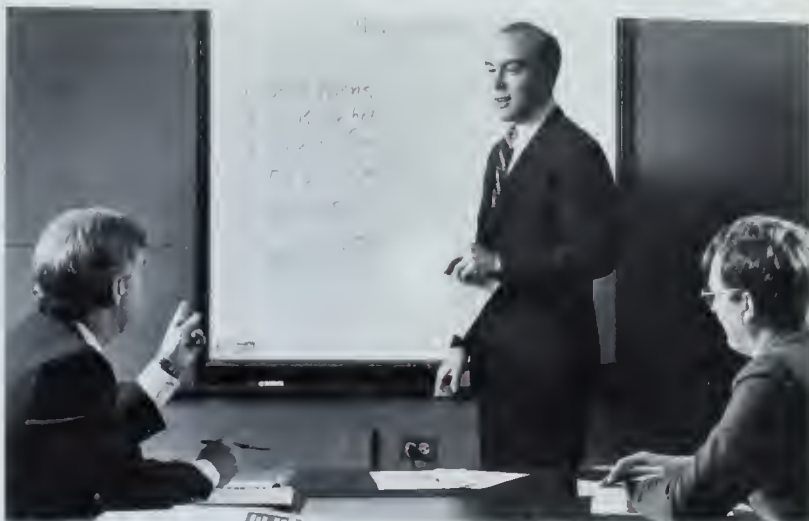
D. McWilliams Kessler (standing) is pictured with Associate Executive Director James J. Mulvihill (left) and Assistant Executive Director for Finance Robert M. Emmett.

In reflecting over events of the past year at Wills Eye Hospital, I am encouraged by the significant progress that was made despite the challenges presented by a rapidly changing fiscal and regulatory health care environment. I am particularly proud to report that financially, 1986 was a banner year for Wills. An operating profit of \$2,364,588 by year-end markedly reinforced the Hospital's financial foundation. With the addition of non-operating income, our 1986 fiscal net bottom line was \$4,399,754, nearly double that of the previous year. We are therefore better prepared to meet the difficult challenges that are anticipated in the future.

The shift from inpatient to outpatient care at Wills gained momentum last year, with the steady growth in day surgery procedures statistically counterbalancing the decrease in the Hospital's inpatient population. The smooth transition to day surgery was due largely to the efficiency and preparedness of the Hospital staff who managed this major change. Our special challenge now will be to maintain our high quality day surgery program in light of upcoming Medicare payment reductions.

While our overall patient population grew to 228,000 last year, the large majority of those seeking help at Wills were diagnosed and treated on an outpatient basis. The declining inpatient census and current and anticipated health care reimbursement cutbacks forced us to seek additional revenue to support the day-to-day functions of the Hospital and its educational programs in the future. Toward that end, the Hospital entered into an agreement with the Hand Center of Thomas Jefferson University which permits Hand Center physicians to admit patients and to perform some of their surgery at Wills.

In the years ahead, we will continue to maximize current revenues and to aggressively reach to new patient populations. To reinforce that process, our strategic planning and business development activities



were accelerated last year, with members of the Board, medical and management staffs actively participating. In addition, the Hospital entered into several cooperative ventures with Jefferson and other health care providers in the areas of marketing, joint purchasing, patient care and education.

The quality and scope of care at Wills was enhanced last year with the addition of a Vascular Studies Laboratory as part of our neuro-ophthalmology services and the establishment of a Fascia Lata Bank to augment the Hospital's oculoplastic services. Also, the Emergency Room was revamped, the Contact Lens Service relocated, and a ninth operating room equipped and opened. Further, the Hospital's laser treatment capabilities were expanded when the YAG laser in the Glaucoma Service was updated, and a tunable dye laser was added to the Retina Service to facilitate the treatment of both inpatients and outpatients.

Throughout the year Wills continued to receive the generous support of its many

benefactors, including our Women's Committee which reached a milestone of \$1 million in contributions to Wills in May. The Pennsylvania Lions also continued their generous support of the Hospital's building fund and research program, and Fight for Sight maintained their longstanding commitment to Wills by providing significant funding for the Children's Eye Center.

I would like to offer a final word of thanks to the members of the Wills family who contributed greatly to this year of progress—our supportive Board of Directors, our world-renowned Medical Staff, our dedicated Women's Committee and our loyal employees. As we look to the future, we will continue to pursue expansion of our services. But more importantly, through sound operational and financial management, we will redouble our efforts to preserve the heritage and traditional standards of excellence that have made Wills Eye Hospital one of the world's premier centers of eye care, teaching and research.

D. McWilliams Kessler

D. McWilliams Kessler
Executive Director

GENERAL OPHTHALMOLOGY SERVICE

"Technological developments over the past 25 years have made cataract extraction one of the safest and most successful operations." NEI

The treatment of cataracts, the gradual clouding of the eye's lens, is one of modern ophthalmology's brightest success stories. "Compared to 20 years ago," notes Raymond E. Adams, M.D., Chief of Wills' General Ophthalmology Service (GOS), "the cataract surgery of today is radically different. Now, instead of spending a week in the hospital, most cataract patients can have their surgery and leave the hospital in a few hours."

"Each year," Dr. Adams adds, "more and more cataract operations are being performed. Part of this is because the population is getting older. But, I think another reason is that patients are more certain of the operation's success, and they are less reluctant to have the surgery."

Many of the patients who come to the General Ophthalmology Service have cataracts. During the past year, 4,204 cataract extractions were performed at Wills, and all but 504 of these cataract patients went home on the day of their surgery.

The 125 surgeons on the Wills GOS staff are pioneers in cataract and lens implant surgery, working at the forefront of developments in their specialty. One of the most exciting recent advances in cataract surgery is the growing use of phacoemulsification—a type of extracapsular cataract removal—in which ultrasonic waves reduce the cataract to minute particles, which are then suctioned out of the eye. This technique, employing a fine needle vibrating more than 40,000 times a second, was invented by a former Wills resident. "Phacoemulsification has revolutionized cataract surgery," Dr. Adams points out. "Extracapsular surgery requires a smaller incision, has reduced recovery time and decreased postoperative complications."

Another landmark development in cataract surgery is the use of intraocular lens implants, artificial lenses inserted in the eye after the patient's cloudy lens has been removed. The latest innovation is a soft, foldable implant that can be inserted through a very small incision, further speeding recovery time. The first artificial lens implant in the United States was performed at Wills in 1952.

At present, surgery is the only treatment for cataract. "But research is ongoing," Dr. Adams concludes. "A new laser being developed, called the Excimer, dissects or splits cells apart. This experimental tool could be a way to eliminate the need for surgery. The outlook for cataract patients has never been better."



Advances in treatment methods have made rapid recovery and same-day surgery possible for cataract patients. In the past, it could take months for useful vision to be restored—until the patient received a final prescription for glasses or contact lenses. Now, with lens implants, a cataract patient has useful vision within the first week or two after the procedure.

WILLS EYE HOSPITAL
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Last year, more than 34,000 patients were seen in the General Ophthalmology Service. In addition to providing expert care, ranging from a change in lens prescription to the diagnosis of cataract or glaucoma, the GOS provides the Hospital's residents with an opportunity to train under senior attending ophthalmologists.



In about a fifth of implant patients, the membrane supporting the new lens begins to cloud. The YAG laser can painlessly pierce the membrane to permit vision-restoring light to pass through the lens, thus eliminating the need for more surgery.

JUAN J. ARENTSEN, M.D.

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GLAUCOMA SERVICE

"The fact that glaucoma remains a major cause of blindness indicates the need to develop more effective means of early detection, prevention and treatment." NEI

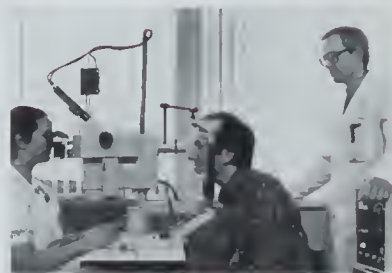
Despite the availability of various ways to control intraocular pressure, glaucoma continues to present a formidable threat to vision.

"We once thought of glaucoma as the result of intraocular pressure above a certain, fixed threshold," explains George L. Spaeth, M.D., Director of Wills Eye Hospital's Glaucoma Service. "We now know that the pressure which can damage the optic nerve can vary widely from person to person. Instead of simply measuring pressure, we must carefully look for other symptoms, things like loss of visual field or changes in the optic nerve itself. The key to treating glaucoma successfully is early detection."

The Wills Glaucoma Service has one of the largest clinical practices in the world. Putting this vast resource to work, the Service created the sophisticated and comprehensive Glaucoma Service Diagnostic Laboratory (GSDL) as a means of collecting and analyzing diagnostic information, facts about the disease which may hold the potential to reduce its threat in the years ahead. "Instruments such as the Octopus Field Perimetry and the Par Image Analyzer are providing us with invaluable data about a patient's visual field and optic nerve," Richard P. Wilson, M.D., Director of the GSDL, points out. "We have evidence from a year-long study of glaucoma patients that, if we can detect minute changes early enough, we can usually prevent further damage." "In some cases," adds Dr. Spaeth, "we may even reverse the damage. This could revolutionize the way doctors diagnose and treat the disease."

Although there are several types of glaucoma, all have in common a restriction or blockage of the normal flow of fluid in the eye. Treatment options are aimed at slowing the formation of the fluid or increasing its flow out of the eye. Notes Dr. Spaeth, "Most ophthalmologists appropriately still use medication rather than surgery to treat glaucoma. But, the speed and precision of new laser surgical techniques, balanced against the potential side effects of some medicines, may change this." The Glaucoma Service is participating in an NEI-funded study evaluating the safety and efficacy of laser surgery versus medication in the initial treatment of a common form of the disease.

Powerful and precise lasers, such as the YAG laser, are making "knifeless" surgical treatment of glaucoma possible. Rapid and painless, laser surgery can minimize post-operative complications and free the patient from dependence upon medications to control intraocular pressure.



The revolutionary PAR Image Analyzer, a computerized system which produces a kind of relief map of the inside of the eye, is helping to discover possible patterns which may lead to very early detection of glaucoma.

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JAMES J. AUGSBURGER, M.D.

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The large numbers of patients treated in the Glaucoma Service assure residents and fellows of experience which probes beyond the limits of "textbook" cases. Director George L. Spaeth, M.D., points out, "Many former Glaucoma Fellows now head services in prestigious hospitals and universities worldwide."



Glaucoma, often called the "silent thief of vision," is generally thought of as an adult disease. "Young children and even infants, however, are sometimes affected," notes Dr. Spaeth, "and the disease is not uncommon in young adults. Therefore, it is important to check people of all ages." At Wills, children with glaucoma are usually cared for by both pediatric ophthalmologists and glaucoma specialists.

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CORNEA SERVICE

"Corneal diseases and injuries account for six percent of all blindness in the United States. They are the most painful of all ocular disorders." NEI

Herpes simplex virus, bacterial and fungal ulcers and congenital diseases become serious, sight-threatening problems when they attack the cornea, the clear portion of the eye in front of the pupil. During the year, more than 15,000 patients were treated for corneal disorders in Wills Eye Hospital's Cornea Service. "Ophthalmologists far and wide refer their patients to Wills for treatment of some of the most serious and rare corneal conditions," says Peter Laibson, M.D., Director of Wills' Cornea Service.

Herpes simplex virus, the same virus that causes cold sores, is the leading infectious cause of corneal blindness in the nation. It is one of the most difficult diseases to treat. Dr. Laibson notes, "The key to success, at present, is early detection since the anti-viral compounds used to treat ocular herpes are most effective in the beginning stages of the infection." Elisabeth J. Cohen, M.D., Senior Assistant Surgeon, has recently completed a study using a combination of Interferon and anti-viral drugs in the form of eye drops to see if the infection can be controlled earlier and more effectively.

Other clinical studies being conducted in the Wills Cornea Service include evaluations of radial keratotomy surgery, a procedure in which radial incisions in the cornea are used to help correct refraction and reduce nearsightedness; the use of Vitamin A to treat "dry eye"—a relatively rare, debilitating condition in which too little moisture is produced in the tear system; and the growing incidence of bacterial ulcers in patients who wear extended-wear soft contact lenses. "While the number of wearers who develop ulcers is a small percentage, the increasing reports of infection and damage to healthy, young eyes make further investigation a must," notes Dr. Laibson.

In the coming year, Cornea Service physicians will also be evaluating another refractive surgical procedure for patients who cannot tolerate contact lenses after cataract surgery. The procedure, epikeratophakia, involves permanently sewing a "living" lens, fashioned from donor corneal tissue, over the patient's own cornea.



The Cornea Service is a major participant in an NEI study of radial keratotomy—a surgical technique for treating nearsightedness. Of the 435 patients taking part in the research, 57 have undergone the procedure at Wills. "Early results," comments Juan J. Arentsen, M.D., Attending Surgeon, "indicate that the procedure is both effective and safe. But only further evaluation over the long term will tell us about its effects with absolute certainty."

E. HOWARD BEDROSSIAN JR., M.D.

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More than 375 cornea transplants were performed at Wills during the past year using donor tissue provided by the Lions Eye Bank of Delaware Valley, housed at the Hospital. It is here that donor tissue is collected, examined and graded for use in transplantation

or research. "Corneal transplantation," comments Dr. Laibson, Director of the Cornea Service and Medical Director of the Lions Eye Bank, "is the most successful of all organ transplants."



Cornea Service physicians specialize in the treatment of rare or complicated cases, such as patients who may have had a cornea transplant and now need cataract surgery.



Cornea transplant recipients who wear contact lenses must receive frequent examinations. In an ongoing study in the Cornea Service, the specular microscope is used to gauge the health of the transplanted corneas in these patients.

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CONTACT LENS SERVICE

"Sight is important for learning, for using tools and devices, moving about, and for enjoying all human endeavor. The best possible eyesight is precious." — NEI

"The cornea is our window on the world," says Zoraida Fiol-Silva, M.D., Director of the Contact Lens Service at Wills. This thin, clear surface—like a watch crystal—at the very front of the eye is crucial to good sight.

"While the position of the cornea makes it vulnerable," adds Dr. Fiol-Silva, "it also makes possible the use of contact lenses to correct vision, decrease pain and improve the quality of life for the millions of people who wear them."

Recent improvements in the design and materials of contact lenses are bringing wearers more choices than ever before: soft, hard, or gas-permeable daily-wear lenses or soft, extended-wear lenses. "But," emphasizes Dr. Fiol-Silva, "we're not just talking about lenses for cosmetic reasons. There are a host of other important considerations, many of them therapeutic."

By far the largest number of people for whom wearing contact lenses has an important therapeutic foundation are post-cataract patients who have not received an intraocular lens implant. These contact lenses are specially designed and formed to compensate for the loss of the eye's natural lens, which is removed during cataract surgery. Prior to the development of these special lenses, such patients had to wear thick, cumbersome cataract glasses. "It's gratifying to fit these patients, mostly older individuals, with contact lenses that permit them to quickly resume and maintain the normal routine of an active life," says Dr. Fiol-Silva.

Another specialty contact lens is a rigid type designed expressly for patients suffering from keratoconus—a disease in which the normally domed cornea gradually assumes a pointed, or conical, shape. This disease, which usually strikes people between mid-teens and mid-thirties, severely impairs vision in the prime of life. "These contacts," explains Dr. Fiol-Silva, "mean the difference between seeing and not seeing, because glasses cannot help them."

As more and more uses are found for contact lenses, and the explosive trend in cosmetic wear continues, it becomes ever more important to educate wearers in the potential complications of the lenses and how to minimize them. "If the lenses are improperly fitted, or worn without careful and regular disinfection," adds Dr. Fiol-Silva, "dangerous and painful conditions can develop. More and more, we are discouraging the use of cosmetic soft, extended-wear lenses and recommending the daily wear gas-permeable types. These offer better durability, sharper vision and, because they permit more oxygen to reach the surface of the eye, a much lower risk of infection and corneal swelling."



The therapeutic contact lens most frequently fitted in the Contact Lens Service is for patients who have had cataract surgery. Those especially benefiting from these "aphakic" soft, extended-wear lenses are cataract patients with glaucoma, a condition which reduces peripheral vision.

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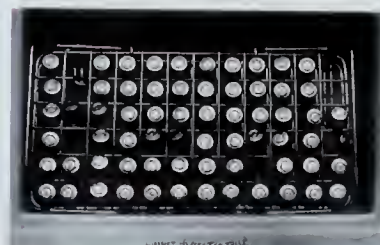
CARY C. BROWN, M.D.

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Keratoconus, a progressive disease that often strikes in the mid-teens, can result in a severe impairment of vision that can only be corrected with special contact lenses.



Patients come to the Wills Contact Lens Service with a wide variety of needs. This patient is being fitted with a special hand-painted lens to improve the appearance of an iris damaged through trauma. Other specialty lenses include bifocal, deposit-resistant, tinted, x-chrome for color blindness, and a super-thin "bandage" lens worn to ease the discomfort caused by scarring or blistering of the cornea.



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PEDIATRIC OPHTHALMOLOGY SERVICE

"Pediatricians and other clinicians treating children have become more aware of the importance of early diagnosis and treatment of visual problems." NEI

"The first few months of infancy are critical to the development of good vision," notes Joseph H. Calhoun, M.D., Director of the Pediatric Ophthalmology Service at Wills. "Seeing is a learning process. If babies don't have the opportunity to see early in life, they may never learn to see—or they may develop a severe visual impairment which may eventually affect their ability to perform in school."

Accurately testing an infant's vision, however, is not an easy task. "A four-year-old may be able to tell us what he sees," explains Dr. Calhoun, "but we must rely upon other means to test the vision of a child who has not yet learned to talk." Parents are a major key to diagnosing problems. "At six weeks," he notes, "a child should be able to stare at an object and follow its movement. If the child squints, or makes faces when looking, it could be a signal that some vision problem exists."

During an examination, the ophthalmologist uses behavioral signs to determine if the eyes are focusing and working together. In as many as one child out of 20, the eyes do not focus accurately or work together. "Of all visual problems in children," comments Robert D. Reinecke, M.D., Director of the Foerderer Center for the Study of Eye Movement Disorders in Children at Wills, "the most common are strabismus—a misalignment of the eyes—and amblyopia—or 'lazy eye.'"

"The standards for testing vision in preverbal children are constantly changing as new techniques are developed," notes Dr. Reinecke. Some of the new techniques currently under investigation in the Foerderer Center involve the use of sophisticated computers to monitor brain wave responses to visual stimuli in small children. This new approach is not only highly accurate and reproducible, but it can be carried out on an infant in seconds—a time within the attention span of even the smallest child.

The Foerderer Center at Wills is one of a very few such clinical research centers in the nation. "Techniques like these," cites Dr. Reinecke, "promise a way to monitor clinically the complex system of eye movements. That's an important tool. Such insights may one day suggest new means of treatment."

In an ongoing clinical trial funded by the NEI, the Pediatric Ophthalmology Service conducts prism adaptation tests to evaluate the amount of eye muscle surgery required to correct an eye muscle disorder.



Most eye muscle conditions may be adjusted with the use of corrective glasses or patching. But, of the 14,000 youngsters visiting the Pediatric Ophthalmology Service during the past year, about 1,000 had to undergo corrective muscle surgery. Surgery not only improves visual acuity, but it is also instrumental in helping reduce the stigma attached to having crossed eyes or "lazy eye."

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Pediatric ophthalmologists have learned that early detection is the key to successful treatment of eye muscle disorders. "A child must be able to focus a clear image on the retina early in life in order for good vision to develop," says Joseph H. Calhoun, M.D., Director.



At the Foerderer Center for the Study of Eye Movement Disorders in Children, researchers are focusing on the most common visual problems in children. Established with a \$3.3 million bequest from the Estate of Ethel Brown Foerderer, the Center is equipped with state-of-the-art recording instruments that enable specialists to accurately monitor eye movements and look for patterns.

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RETINA SERVICE

"Intensive research over the last several years has led to dramatic improvements in the diagnosis and treatment of some retinal and choroidal diseases." NEI

"Early diagnosis and evaluation are critical to provide successful treatment of retinal problems," says William H. Annesley, Jr., M.D., Director of the Retina Service at Wills. "As an example, this is particularly true of vascular, or blood vessel, diseases. National studies have shown that the severity of the visual loss can be lessened, or its progression halted, with prompt detection and treatment."

This conclusion is underscored by preliminary results released last year from the Early Treatment of Diabetic Retinopathy Study, an NEI-sponsored clinical trial in which Wills Eye Hospital participated. The study shows that, if the disease is detected and treated with a laser in its early stages, macular edema—a type of retinopathy—can be reduced.

"Earlier studies have shown that laser treatment of the entire retina will often reduce abnormal blood vessel growth which leads to bleeding inside the eye," Dr. Annesley says.

Treatment capabilities for retinal diseases have been increased by the advent of the tunable dye laser, an instrument in which the color of the laser beam is "tuned" to the wavelength best suited to the condition or disease being treated.

Another important instrument is the cryoprobe, used to freeze tissue. Retina Service physicians are now involved in an NEI study on a new application of cryotherapy. This study is measuring the effect of cryotherapy on halting the progression of visual loss in retinopathy of prematurity, which can occur in underdeveloped retinas in premature babies. "About 800 to 1,000 premature babies go blind each year in the United States. If cryotherapy proves effective in arresting severe cases of retinopathy of prematurity, that number could drop dramatically," says William Tasman, M.D., Co-Director of the Retina Service and Principal Investigator of the Study.

Preserving sight is the major goal of the Retina Service, now one of the largest in the world. In little more than 25 years, the Retina Service has grown from five physicians to 14 staff members and eight fellows. Over the years, the Service has diversified into Units structured to treat specific diseases. Blood vessel diseases of the retina are the province of the Vascular Unit. The Uveitis Unit treats inflammatory and immunological retinal diseases, and the Macula Unit specializes in the treatment of macular degeneration, a leading cause of vision loss in the elderly. The newest Unit, Retinal Dystrophy, treats patients with congenital and inherited degenerative diseases of the retina.

Another important component of the Retina Service is research. "Inflammatory eye diseases are a significant cause of visual handicap," notes Larry A. Donoso, M.D., Ph.D., Co-Director of the Wills Research Department. "so research into these conditions is very important."

Dr. Donoso is currently working in collaboration with several laboratories, including the NEI, on research into S-antigen—a retinal protein which causes uveitis, an inflammation of the eye. Dr. Donoso seeks to determine which part of the protein's molecule is responsible for causing the disease. Once this is firmly established, it may be possible to develop new drugs for treating or preventing this potentially blinding disease.



Surgery with the SITE vitrectomy machine, invented by Wills surgeon Jay Federman, M.D., is particularly successful in helping repair a detached retina. The use of the laser or cryotherapy can correct some retinal tears before they become detachments.

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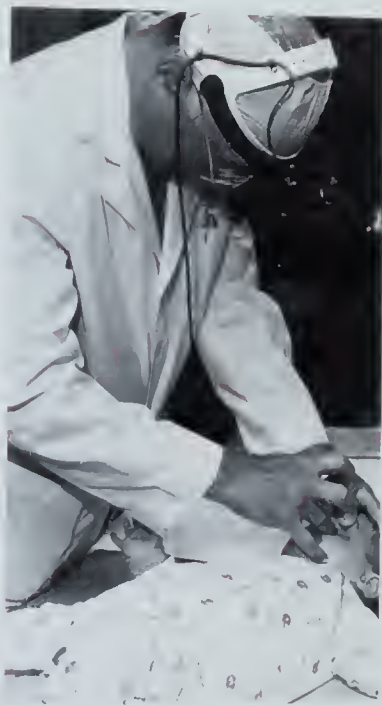
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"The advent of the tunable dye laser represents the most important step in the treatment of retinal diseases over the years," notes Dr. Annesley, "because it increases our ability to effectively treat a greater number of conditions as well as more difficult conditions."



Retinopathy of prematurity, a condition which can affect premature infants in whom the retinas have not fully developed, is being treated at Wills as part of an NEI study looking into the effectiveness of cryotherapy as a means of treatment.



Since its inception in 1960, the Retina Service has grown to be one of the largest in the world. Specific diseases can be treated by physicians in each of the Service's specialized units: Macula, Vascular, Retinal Dystrophy and (pictured) Uveitis.



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ONCOLOGY SERVICE

"Other disabling retinal and choroidal diseases include retinal tumors." NEI

The Oncology Service at Wills Eye Hospital, staffed fulltime by two ocular oncology specialists, is a global referral center for cancers related to the eye. These include four major types: intraocular, orbital, eyelid and conjunctival.

"We are continuing to develop and perfect techniques for treating tumors through new surgical approaches and radiation therapy," comments Jerry A. Shields, M.D., Director of the Oncology Service. "The percentage of cases requiring enucleation, or removal of the eye, is lower as our knowledge grows."

The primary intraocular tumors treated in the Oncology Service are malignant melanomas and retinoblastomas. "Retinoblastoma," notes Dr. Shields, "is the most common malignant intraocular tumor in children. It is a tumor of the retina, and in about 30 percent of the patients, both eyes are involved. Years ago the only treatment available was removal of the eye, and the cure rate was only about ten percent. Today, using radiotherapy, cryotherapy or laser photocoagulation, we can save the eye in many cases." More importantly, the cure rate has also increased dramatically, and today more than 90 percent of affected children survive.

"Malignant melanomas, also, almost always required removal of the eye up until a few years ago," says Dr. Shields. "Now, however, we can treat about 70 percent of the tumors with a variety of methods which can save the eye and allow the patient to retain useful vision." Wills' Oncology Service is participating in a collaborative study evaluating the effectiveness of radiation treatment versus enucleation.

The advent of CT scans greatly assisted accurate diagnosis and surgical planning in the treatment of orbital tumors. A recent development—magnetic resonance imaging—is being evaluated as a more exact technique for differentiating eye tumors of various types. Fine-needle biopsy is also being used in selected instances to obtain a rapid and accurate diagnosis with minimal surgical intrusion.

Oncology Service physicians also see patients with conjunctival and eyelid tumors. In many of these cases, surgical removal of the tumor can be accomplished without removing or damaging the eye itself. Dr. Shields adds, "We are also evaluating the use of cryotherapy, freezing, as a means of further preventing recurrence, in some cases."

New diagnostic techniques in pathology are also being used to facilitate the diagnosis of ocular tumors. These techniques are proving useful in determining the precise cell type for many tumors—an important aid to helping the physician decide on an appropriate course of treatment.

Wills' Oncology Service is a global referral center for the diagnosis and treatment of ocular cancer. Each year, the Service examines more than 3,200 patients—more than any other center in the world.



Laboratory research is an important part of the fight to preserve vision at Wills Eye Hospital. One project involves the production of monoclonal antibodies to react against eye tumors. New and costly technology, such as this DNA synthesizer, is contributing to the success of eye research programs.

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NEURO-OPHTHALMOLOGY SERVICE

"Understanding visual processing and the disorders that affect it is almost totally intertwined with knowledge of how the human nervous system works." NEI

"We are primarily diagnosticians who pick up the troublesome cases that fall somewhere between ophthalmology and neurology," notes Peter J. Savino, M.D., Director of the Neuro-Ophthalmology Service at Wills. "If a pair of eyes are healthy, and yet the patient complains about vision, the problem must be something else. The eye is part of the nervous system, and you can't separate the two."

The Wills Neuro-Ophthalmology Service is the largest in the world, with four neuro-ophthalmologists on staff. Advanced and increasingly more sensitive tools are aiding diagnosis on a large and varied patient population, with vision problems ranging from the relatively commonplace to the exceedingly rare.

Among these tools are the CT scan and the newer MRI, short for magnetic resonance imaging. These are relatively non-invasive tests which produce an image of the brain. "MRI is the most exciting thing to happen in neuro-ophthalmology in years," explains Dr. Savino, "because it provides us with the most complete information possible, even telling us, in some instances, the chemical properties of a tumor. This is a tremendous help in deciding the most effective treatment options."

Research is also an important component of the Neuro-Ophthalmology Service. "Basic research," notes Robert C. Sergott, M.D., Associate Surgeon, "leads directly to better patient care." Dr. Sergott is a principal investigator in NIH and National Multiple Sclerosis Society research projects seeking a new understanding of the causes of optic neuritis—inflammation of the optic nerve.

"Optic neuritis may occur as an isolated incident, or it can be an indication of multiple sclerosis. In both cases, the myelin sheath surrounding the nerve deteriorates," explains Dr. Sergott. This condition has been difficult to observe in humans, but Dr. Sergott has perfected a model to study part of the disease. "The model," he notes, "has let us observe certain factors in the blood and spinal fluid which may produce optic neuritis." The study has also shown that damaged nerves attempt to repair themselves. This knowledge may help doctors to understand how to stimulate healing.

The Neuro-Ophthalmology Service is participating in an NEI study of the effectiveness of a special treatment for blepharospasm, an unusual condition in which muscle spasms can clamp the eyelids closed unexpectedly and uncontrollably. The treatment employs injections of minute doses of botulinum toxin. The toxin paralyzes targeted sections of the eyelid muscle, hindering the spasms while permitting normal blinking.

"Standard vision testing is done on a black and white chart. But the real world," notes Dr. Savino, "isn't that stark." The new contrast sensitivity test incorporates shades of grey to measure the patient's ability to differentiate subtle contrast and to pinpoint the nature of a neuro-ophthalmological problem.



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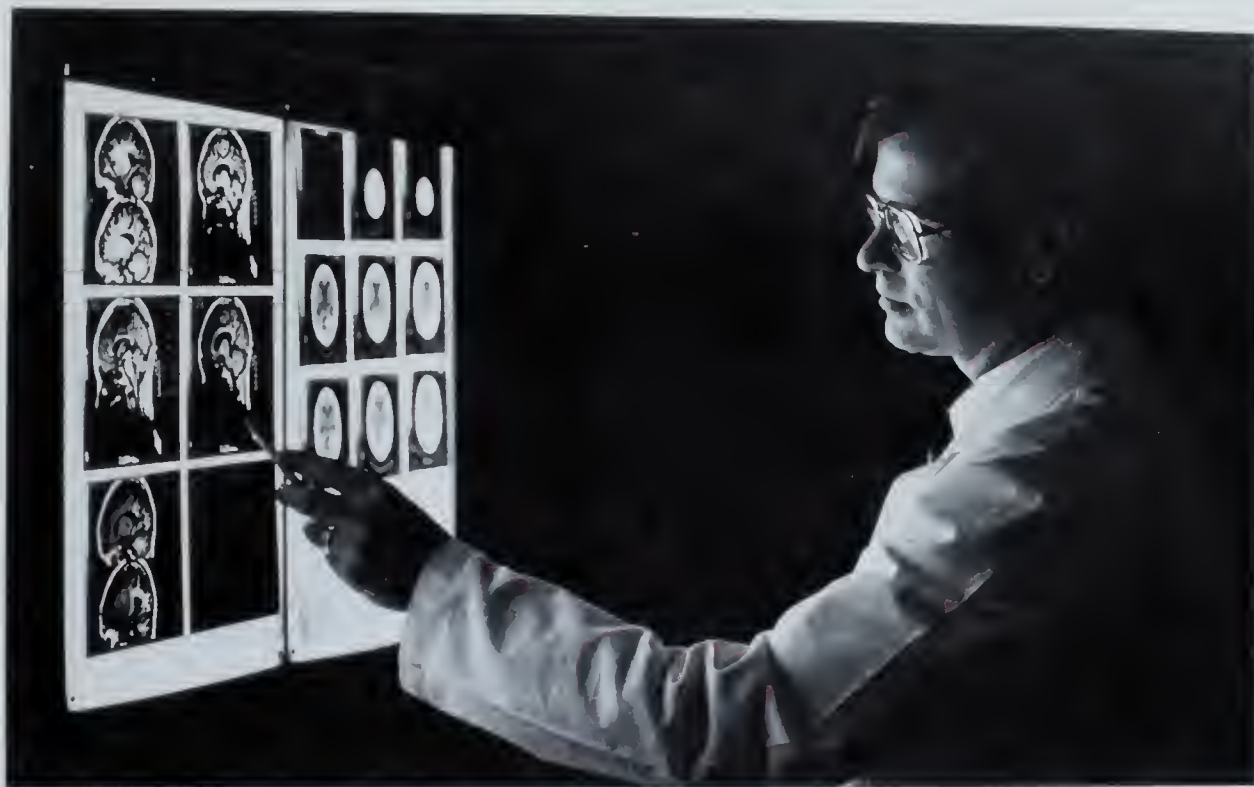
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The neuro-ophthalmologist's primary function is that of diagnostician. Advanced and increasingly more sensitive tools—such as the CT scan and magnetic resonance imaging—are making significant contributions to the accuracy of these diagnoses.



Evaluation of the blood vessels in the neck is essential in diagnosing certain ocular and neurological problems. The Vascular Studies Laboratory offers a panel of non-invasive tests to provide this evaluation. The tests are an aid in assessing a patient's risk of developing an eye problem due to arteriosclerosis.



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OCULOPLASTIC SERVICE

"Seeing involves a series of highly complex events. Each portion of the visual pathway performs a specific function in an integrated system of awesome complexity." NEI

"The bony orbit surrounding the eye, the eyelids and the lacrimal system all play an important role in sustaining the eye so that vision is possible," says Joseph C. Flanagan, M.D., Director of Wills Eye Hospital's Oculoplastic Service. Here, patients receive comprehensive care for both diseases and traumatic injuries to the eyes' external support systems.

"We see more orbital and lacrimal cases than any other facility in the country," adds Dr. Flanagan. During the past year, more than 6,500 patients were treated for a wide variety of problems ranging from extensive reconstructions needed by accident victims and cancer patients to the correction of drooping eyelids, blocked tear ducts or infections in the tissues surrounding the eye. The Service makes use of the Hospital's CT scanner to assist in the detection and location of orbital tumors prior to surgery. Cosmetic and reconstructive surgery of the eyelids can be performed on an outpatient basis.

Like the other specialty Services in the Hospital, the Oculoplastic Service makes significant use of lasers. Lasers allow many patients to be treated and released on the same day. "We've experienced tremendous success in the use of lasers to treat patients who previously required as many as five days of hospitalization," notes Dr. Flanagan.

"We use a hand-held attachment to the argon laser for removal of birthmarks, spider veins, vascular tumors and other lesions around the eye without entering the operating room," comments oculoplastic surgeon Mary Stefanyshyn, M.D.

Working closely with the Hospital's Neuro-Ophthalmology Service, surgeons in Wills' Oculoplastic Service have been using a new medication to treat muscle spasms in such conditions as blepharospasm—a disorder in which the eyelids blink uncontrollably and can actually clamp shut. Botulinum toxin, a refined derivative of the organism that causes botulism, is injected in minute amounts to paralyze areas of the offending muscles. This treatment is also being used to treat eye movement disorders. It has proven so successful that the two Services have formed a joint fellowship program involving both clinical care and research in a special diagnostic unit.

During the past year, the Oculoplastic Service established the nation's first Fascia Lata Bank. Fascia Lata, the fibrous encasement of thigh muscles, is used in the repair and reconstruction of eyelids and other delicate structures. "Now we will be able to supply surgeons across the country with tissue needed for delicate surgical procedures," notes Dr. Flanagan. "Until now," he adds, "the material could only be obtained in Canada. This is a major development for the future of reconstructive eye surgery in the United States."



Teaching remains an important aspect of the Oculoplastic Service. This Service treats more eyelid and orbital abnormalities than any other department of its kind in the country. Rotation of residents through the Service provides a valuable learning experience for those who seek specialized training in the field, particularly for the treatment of eyelid and orbital cancers.



Wills oculoplastic surgeons play a key role in the treatment of trauma cases. Serious injuries to the area surrounding the eye, even though not involving the eye itself, can destroy useful vision. Highly developed surgical skills are needed to repair these injuries.

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The largest service of its kind in the country, the Oculoplastic Service at Wills treats patients for problems involving the lid, the orbit and the lacrimal system. It also provides patients with artificial eyes and surgery to enhance the eye's appearance.



Like the other Services at Wills, Oculoplastics makes extensive use of modern lasers. Physicians use a hand-held attachment for the argon laser to remove birthmarks, spider veins, vascular tumors and other lesions from around the eye.

RICHARD E. GOLDBERG, M.D.

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PATHOLOGY SERVICE

"Early detection and prompt, effective treatment of vision-threatening diseases will preserve sight for many Americans." NEI

Physicians from every Service at Wills Eye Hospital depend on the resources of the Pathology Service. "We examine every piece of tissue that is removed by an ophthalmologist during surgery," notes Ralph C. Eagle, Jr., M.D., Director of the Service. "Because of the nature of Wills and its huge volume of patients, Pathology is a very large and important Service."

Biopsy specimens of ocular tissue from operating room, emergency room and outpatient treatment areas of the Hospital are processed in the Pathology Laboratory and examined microscopically. "It is here," notes Dr. Eagle, "that diagnoses are made or confirmed. Although most tissue removed from the eyelid or eye is benign, only microscopic examination can determine if malignancy is present. Diagnostic accuracy is paramount, since the physician's choice of treatment is based on our findings."

Nearly 500 specimens are examined each month, using standard procedures that normally take 48 hours. Often, however, a rapid diagnosis is needed, usually while the patient is still under anesthesia. In these cases, the specimen is rushed to the lab, prepared immediately using a special freezing process, and the results of the tests relayed to the surgeon in the operating room by a telephone "hot-line." The time required is normally under 15 minutes.

Members of the Pathology Service also work closely with physicians conducting clinical research at Wills. This research aspect of the Service involves the review of large numbers of cases to help determine the accuracy and effectiveness of clinical studies. Recently, the Pathology and Oncology Services cooperated to evaluate the effects of a new type of radiation therapy on ocular tumors. Another project, with the Retina Service, involves the use of the Pathology Service's electron microscope to investigate the safety of antibiotics injected into the eye to control infections.

"While we have no direct contact with the patients," explains Dr. Eagle, "our primary concern is patient care. Our work here in the Laboratory affects the outcome of the patient's treatment here at Wills—in the short run, as the result of our diagnoses—and in the long term, as our studies of eye diseases form the basis of new therapies in the battle against blindness."



Modern techniques such as electron microscopy—used when extremely high magnification is needed—form a crucial part of the effort to provide accurate diagnoses.

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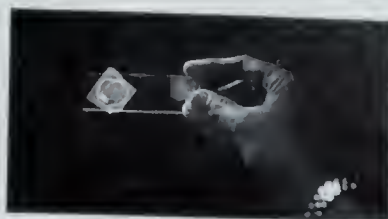
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Pathologists rely on the meticulous preparation of specimens for examination under the microscope. The 15 to 20 diagnoses made each day in the Pathology Laboratory are used by physicians on other Services as the basis of treatment for their patients.



Rapid preparation and analysis of surgical specimens can be crucial to a patient's prognosis. The Pathology Laboratory can provide a surgeon with accurate results on biopsies during surgery. Slides are prepared from flash frozen tissue so that the diagnosis may be made in minutes.

"Education is a major function of the Pathology Service at Wills," says Director Ralph C. Eagle, Jr., M.D. "Residents learn the basic principles of eye diseases during their rotation through the Service, where they experience firsthand the preparation, dissection and analysis of tissue specimens."

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HIGHLIGHTS OF THE PAST YEAR AT WILLS

July

Wills welcomed 13 new physicians into the Residency Program this year, bringing the total number to 38. The large volume of patients diagnosed and treated at Wills, as well as the Hospital's state-of-the-art facilities and stimulating learning environment, also attract practicing professionals seeking advanced training in their fields of interest. This year, 20 ophthalmologists are pursuing one- or two-year fellowships in the specialties of cornea, glaucoma, neuro-ophthalmology, oncology, oculoplastics, pediatrics and retina.



August

The Wills Eye Hospital family mourned the loss of P. Robb McDonald, M.D., founder of the Retina Service in 1960 and its Director until 1971. Dr. McDonald remained a Consulting Surgeon on the Retina Service until his death in August at age 76. A pioneer in retinal detachment surgery during the 1940s, Dr. McDonald was the first to suggest the use of silicone rubber in detachment repair. He will be remembered fondly, both as a teacher and a friend, by the many ophthalmologists who trained under his guidance.



Several members of the Hospital staff were honored by the U.S. State Department for their care of a young Lebanese woman who was badly injured in the 1984 bombing of the U.S. Embassy in Beirut. The Assistant Secretary for Near Eastern and South Asian Affairs recognized the medical team at Wills and also thanked the Hospital's Director of Public Relations and Development for helping the woman make a smooth transition to life in this country. Medical experts at Thomas Jefferson University Hospital also received certificates of recognition for aiding in the victim's recovery.

September

Wills was awarded reaccreditation by the Joint Commission on Accreditation of Hospitals (JCAH). The three-year accreditation signifies that Wills Eye Hospital meets the high professional standards set by the JCAH.

The Hospital entered into an agreement with the Hand Rehabilitation Center of Thomas Jefferson University. The agreement permits the Hand Center's surgeons to admit patients and to perform surgery at Wills.

October

The Oculoplastic Service at Wills established a Fascia Lata Bank—the first such facility in the nation. Fascia Lata, the fibrous encasement surrounding the thigh muscles, has many uses in modern medicine, including eyelid surgery, neurosurgery and hernia repair. The Wills unit is capable of supplying hospitals throughout the country.

November

The Hospital's extensive diagnostic capabilities were enhanced through the opening of a Vascular Studies Laboratory. This new facility offers a panel of non-invasive tests that provide an evaluation of the large blood vessels in the neck. The tests are designed to assess a patient's risk of developing an eye or brain problem due to arteriosclerosis.



December

Recent findings from the National Eye Institute Early Treatment Diabetic Retinopathy Study were announced at joint press conferences held at Wills and in Washington, D.C., by the American Medical Association and the National Eye Institute. The Retina Service of Wills Eye Hospital was one of 23 medical centers chosen to participate in clinical trials begun in 1980 to study the use of argon lasers in the prevention of severe vision loss in patients with diabetic retinopathy. Data from the study show that argon laser photocoagulation reduced the risk of vision loss by half in cases involving diabetic macular edema. This is the first clear-cut evidence of the value of the laser in treating diabetic retinopathy in its early stages. The Principal Investigator of the study at Wills is William E. Benson, M.D., Attending Surgeon on the Retina Service.

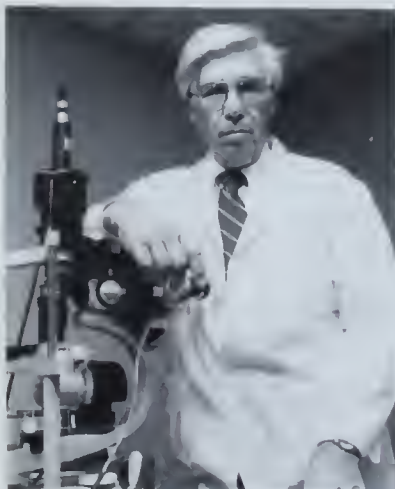
February

To accommodate the continued growth of day surgery, Wills opened a ninth operating room. Building and equipping this new OR was one of the Hospital's major fund-raising projects, and it was generously supported by the Women's Committee, contributors to the Fund for Vision and participants in the annual Wills Eye Hospital Benefit Golf Tournament.

March

The Wills Eye Hospital Society of Ex-Residents once again hosted the Annual Clinical Conference in Philadelphia. This 38th Conference was held from March 13 through 15 at the Adam's Mark Hotel. Nearly 1,000 ophthalmologists from around the nation attended. In addition to the traditional Bedell Lecture, 89 original papers, two symposia and numerous workshops and technical exhibits were featured.

The Hospital's laser capabilities were enhanced by the Retina Service's addition of a tunable dye laser, one of the first of its kind in the nation. The new laser can be tuned to the precise wavelength most effective for the tissue being treated. The laser, used primarily in the treatment of macular degeneration, has produced dramatic results.



April

More than 750 people were examined by Wills ophthalmologists during the Hospital's Fifth Annual Public Eye Screening. The Screening, held over a two-day period, revealed eye problems in 38 percent of the people examined. These problems ranged from the need for new eyeglass prescriptions to cataract and glaucoma.



May

A reception was held to mark the opening of the Foerderer Center for the Study of Eye Movement Disorders in Children. The Center, under the direction of Robert D. Reinecke, M.D., was established through a bequest from the Ethel Brown Foerderer Estate, and includes clinical laboratories at Wills and research facilities at Thomas Jefferson University. Children's eye care has been a special interest of Wills Eye Hospital over the years and was the focus of the Hospital's 150th anniversary symposium in 1982.

Ralph C. Eagle, Jr., M.D., joined the Wills Eye Hospital staff as Director of Pathology. He supervises the functions of the Pathology Service Laboratory and teaches residents who rotate through the Department. Dr. Eagle is a native of Philadelphia and a graduate of the University of Pennsylvania School of Medicine.

June

The Hospital hosted a press conference to help publicize the inauguration of the National Eye Care Project in Pennsylvania. The NECP seeks to bring the benefits of medical eye care to the nation's needy elderly. Many Wills ophthalmologists are participating in the project by volunteering time to conduct free eye examinations for the elderly. The project is sponsored by the American Academy of Ophthalmology nationally and locally through the support of the Pennsylvania Academy of Ophthalmology and Otolaryngology. The Pennsylvania Chairman of the NECP is Thomas A. Farrell, M.D., Associate Surgeon and Director of the General Ophthalmology Service Clinic.

The Women's Committee reached a milestone in its fund-raising activities on behalf of the Hospital. Since its founding in 1954, the Women's Committee has generated contributions of \$1 million in support of many Hospital needs. To honor the Women's Committee and to express their gratitude, the Board of Directors of City Trusts, the Hospital's governing body, hosted a gala luncheon at the Warwick Hotel. A bronze plaque was presented in recognition of the Women's Committee's key role in the Hospital's surgical expansion project.



FINANCIAL DATA

Operating Funds—Balance Sheet

June 30, 1986

Current Assets

Cash & Certificates of Deposit	\$ 9,397,166
Accounts Receivable, Net of Allowances	808,654
Inventories	431,169
Other Current Assets	993,699
Total Current Assets	\$11,630,688

Other Assets

Property, Plant & Equipment	\$31,733,495
Less: Accumulated Depreciation	11,207,712
	20,525,783
Funds Held by Trustee	8,397,046
Investments, Board Designated	3,754,422
Deferred Financing Costs, Net	531,002
Total Other Assets	\$33,208,253
Total Operating Assets	\$44,838,941

Current Liabilities

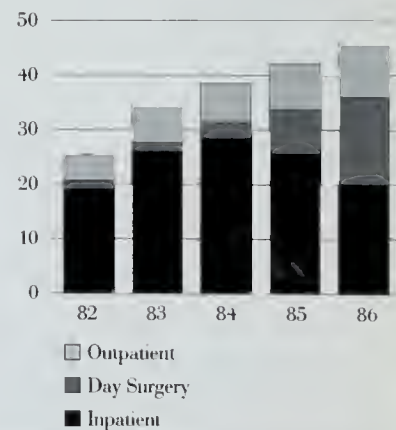
Current Portion of Long-Term Debt	\$ 335,000
Accounts Payable	3,325,607
Accrued Expenses	803,867
Total Current Liabilities	\$ 4,464,474

Other Liabilities and Fund Balances

Long-Term Debt	\$17,365,000
Fund Balances:	
Board Designated	3,754,422
Other	19,255,045
Total Fund Balances	\$23,009,467
Total Other Liabilities & Fund Balances	\$40,374,467
Total Operating Liabilities & Fund Balances	\$44,838,941

GROSS PATIENT SERVICE REVENUE

Millions of Dollars
(as of June 30)



Statement of Revenues and Expenses

June 30, 1986

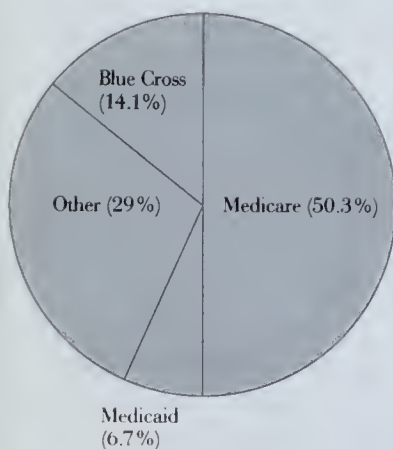
Revenues

Patient Service Revenue	\$46,529,662
Less Uncollectable Accounts, Free Care and Contractual Allowances	18,505,810
Net Patient Service Revenue	28,023,852
Other Operating Revenue	3,110,710
Total Operating Revenue	\$31,134,562

Operating Expenses

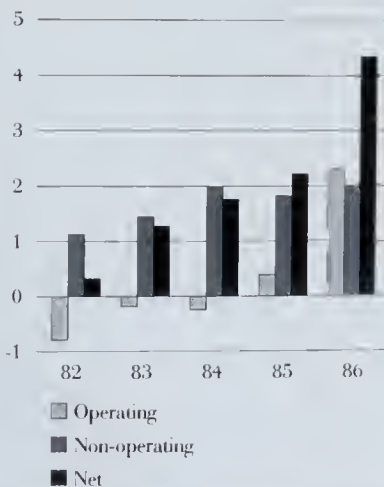
Salaries & Wages	\$11,430,451
Supplies & Expenses	14,332,070
Interest Expense	1,179,512
Depreciation & Amortization	1,827,941
Total Operating Expenses	\$28,769,974
Excess of Operating Expenses Over Revenues	2,364,588
Unrestricted Investment Income	1,666,884
Unrestricted Gifts	368,282
Total Excess of Revenues Over Expenses	\$ 4,399,754

SOURCES OF PATIENT REVENUE
BY PAYOR, 1986

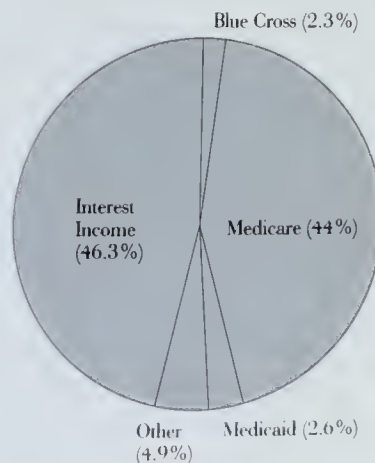


NET INCOME/LOSS

Millions of Dollars
(as of June 30)



SOURCES OF NET INCOME, 1986



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Ophthalmologist-in-Chief

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Zoraida M. Fiol-Silva, M.D.
Instructor

Associate Surgeon
John B. Jeffers, M.D.

Cornea Service

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Attending Surgeon
Joan J. Arcutsen, M.D.

Associate Surgeons
Elisabeth J. Cohen, M.D.
Michael A. Naidoff, M.D.

Senior Assistant Surgeons
H. Thomas Dodds, M.D.
Dion R. Ehrlich, M.D.
Pratima R. Tolat, M.D.

Assistant Surgeon
Irving M. Raber, M.D.

General Ophthalmology Service

Chief
Raymond E. Adams, M.D.
Attending Surgeon

Attending Surgeons
E. Howard Bedrossian, M.D.
Richard A. Ellis, M.D.
Barry D. Cahnan, M.D.
Edward A. Jaeger, M.D.
Charles G. Steinmetz, III, M.D.

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Vitaliano B. Bernardino, Jr., M.D.
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Steven B. Siepser, M.D.
Frederick P. Sutliff, M.D.

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 Robert W. Connor, M.D.
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 Michael I. Kay, M.D.
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 Joseph Spina, Jr., M.D.
 Larry J. Storer, M.D.
 Nandhri Vacharat, M.D.
 Albert W. Zimmermann, Jr., M.D.

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Alexander A. Annette, M.D.
 Marym H. Balistocky, M.D.
 F. Jane Barton, M.D.
 Robert D. Behar, M.D.
 Randall W. Bell, M.D.
 Dominick A. Benedetto, M.D.
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 Siml M. Tischler, M.D.
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 Martin B. Wax, M.D.
 Melvyn A. Wolf, M.D.
 Michael Y. Wong, M.D.

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 Floyd Weinstock, M.D.

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Attending Surgeon

Attending Surgeon

Leonis W. Schwartz, M.D.

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 Ralph S. Sando, M.D.
 Henry A. Scinecca, M.D.
 Eliyathamby Sivalingam, M.D.
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Senior Assistant Surgeon

Michael E. Starrels, M.D.

Assistant Surgeons

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 L. Jay Katz, M.D.
 Marlene R. Mosier, M.D.

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Attending Surgeon
 Norman J. Schatz, M.D.

Associate Surgeon

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Assistant Surgeon

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Attending Surgeon

Associate Surgeon

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Attending Surgeon

Attending Surgeons

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Consultant

Nongnart Romayananda, M.D.

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Attending Surgeon

Co-Director

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Attending Surgeon

Attending Surgeon

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 Leonard B. Nelson, M.D.

Assistant Surgeon

Rebecca J. Adams, M.D.

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Attending Surgeon

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Attending Surgeon

William Tisman, M.D.

Attending Surgeon

Attending Surgeons

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 Richard E. Goldberg, M.D.
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 Peter V. Palena, M.D.

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 Scott Edmonds, O.D.

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Director
Resident Education
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Director
Continuing Medical Education
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Co-Director
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 Paul W. Hiss, M.D.
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 Robert B. Penne, M.D.
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 Michael R. Seybold, M.D.
 Rohh R. Shradler, M.D.

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 Karen L. Fung, M.D.
 Stephen E. Higgins, M.D.
 Joseph J. Kesselring, M.D.
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 Marlon Maus, M.D.
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 Raymond M. Stein, M.D.

Glaucoma
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 Gurinder Singh, M.D.

Neuro-Ophthalmology
 Mitchell D. Drucker, M.D.

Oculoplastics
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Pediatric Ophthalmology
 Robert A. Catalano, M.D.
 David J. Seidman, M.D.

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 Suqun Guo, M.D.

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 Hermann D. Schnibert, M.D.
 John C. Welch, M.D.

**Wills Eye Hospital is a major affiliate of
Jefferson Medical College, Thomas
Jefferson University**

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Joint Commission on the Accreditation of
Hospitals

Pennsylvania Department of Health

Accreditation Council for Graduate Medical
Education

Accreditation Council for Continuing Medical
Education of the American Medical Association

Pennsylvania Hospital Insurance Company

College of American Pathologists

Memberships

American Hospital Association

Hospital Association of Pennsylvania

The Delaware Valley Hospital Council

American Association of Eye and Ear Hospitals

Wills Eye Hospital
Ninth and Walnut Streets
Philadelphia, PA 19107